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PART 1

THE BUSINESS PERSPECTIVE

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Executives, you cannot be expected to have in-depth knowledge of training systems, human learning processes, instructional design, or instructional technology, but your support is essential to the success of your e-learning program. You can see that electronic transmission of information is now easy and inexpensive, but simple availability of information does not mean that your business performance needs have been solved.

Part 1 discusses the value of good e-learning, the role it can play in making your business more competitive, and the components and characteristics that must be included in a robust, effective e-learning application.

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CHAPTER ONE

PLAIN TALK

Success is getting people to do the right thing at the right time!

Did I shout loudly enough? e-Learning is about success, both individual and organizational. It's about behavioral change—again, both individual and organizational. It's also about inspiration, competency, and fun with technology. It's where I've lived for well over 30 years, and I invite you to join me in reviewing the state of e-learning from a very personal perspective.

I'd like to show you the often untapped potential I see in e-learning and share with you some lessons I've learned about how to make e-learning a valuable competitive investment for any success-oriented organization.

There is a reason for e-learning. Actually, there are many reasons for e-learning, ranging from practical to idealistic. Pundits note that in our information-based economy and society, e-learning may be the missing integration that will most dramatically change our lives. It will allow us to learn what, where, and when we want to learn. It will provide choices in how we learn. It will make hard things easy and fun to learn. It will wrestle our intellectual laziness to the ground while helping each of us use more of our untapped capabilities. Life will be grand.

Sure. And, with knowledge and skills readily acquired when the spirit moves us, we will blissfully pursue alternate careers on a whim.

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The e-Learning Myth

Organizations sit down to study their primary goals and performance needs. They look at the products and services they want to provide; the fidelity of service or manufacturing that will be competitive, marketable, and profitable; and their current abilities to provide them. If they are not already performing at a sufficient level, questions of staffing, process, and management are reviewed. (See Figure 1.1.)

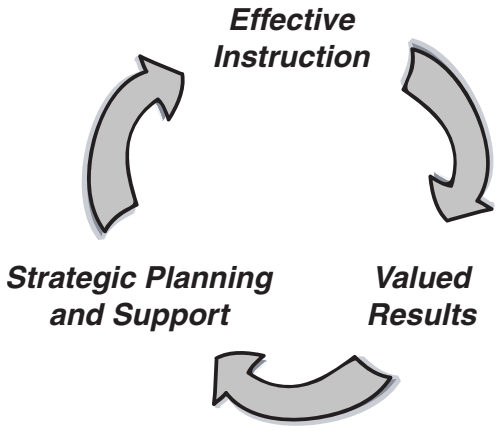

FIGURE 1.1 Circle 1—success cycle.

A strategic program is put into place, which likely includes training as a cornerstone. With excellent results systematically achieved, those responsible for the training take an honored seat at the executive table to help plan the next strategic advancement.

Right. Wake me when the dream is over.

Who's Kidding Whom?

To me, a long-term (many would simply say *old*) proponent, researcher, observer, and developer of technology-based learning applications, this goose-bump-generating hyperbole brings frustration and impatience. It's very nice to hear of such confidence in the future of our field. It's a future I've believed in for some decades now. The possibilities keep opportunities alive and cash flowing.

My high blood pressure results from a personal realization that prognostications of learning technologies and their applications continue to lollygag as futuristic fantasies. It doesn't seem to matter how much

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technologies for the delivery of effective interactive instruction evolve or how much we have learned about effective instructional design.

Boring instruction is not effective instruction. Minds wander, attention wanes, learners muddle through, maybe. When learners are through, they're through—relieved it is over and ready to escape to something else as quickly as possible. Little is retained. Needed behaviors have not been established. Rich associations do not exist for learners to remember key points. It's a waste. It's bad.

What is happening today is a lot of boring stuff. Boring instruction is being developed for electronic distribution in ever-increasing quantities. It is getting to more and more people more and more efficiently every day. The applications may have been designed following structures validated by research on human learning (although probably not), and they may be totally correct from a content accuracy point of view. They may be totally proper in terms of graphic design, typography, and grammar. But they are boring. Boring is bad. (See Figure 1.2.)

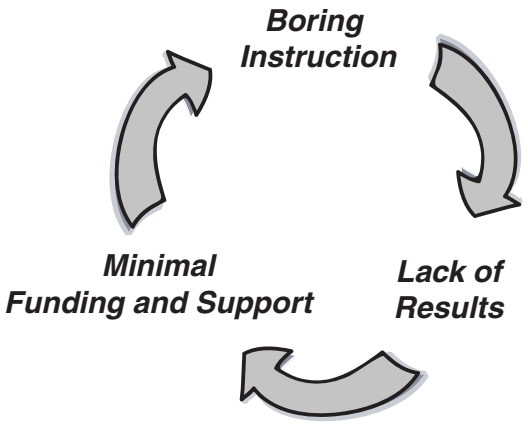

FIGURE 1.2 Circle 2—failure cycle.

"Oh," you're thinking. "Everyone knows boring instruction is bad!"

Do they? Would people deliberately put out bad instruction? No, but they would and do put out *boring* instruction, so they see some difference. Bad isn't acceptable, but boring is.

When budgets are tight (and when aren't they?), an unwitting experiment ensues. Training has to get by on less. It isn't likely to become less boring on a reduced budget. So, if any development is done, more boring stuff is produced.

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"Guess what?" one executive says to another. "Training did just fine with their reduced budget. I don't see any difference, really. Of course, they're complaining that they didn't have enough resources to do it right, but it seems we're getting by just as well as before. Maybe we can cut training a little more! It doesn't seem to matter."

Entertaining Doesn't Mean Good

Of course, avoidance of boredom doesn't equate to good instruction either. In fact, many instructor-led training events get outstanding "smile-sheet" ratings because trainees have a great time. They enjoy lots of laughs and take home some little-known facts that are great for image enhancement, but nothing significantly changes behaviors, improves processes, or otherwise enhances functionality.

Providing a lively experience is a worthy goal. Boring is bad in the instruction business. Bored learners don't learn. *Boring* and *effective* are mutually exclusive attributes in learning. You can't be effective if your training is boring.

Effective versus Boring—Pick a Circle

Nobody consciously opts for Circle 2, the failure cycle (Figure 1.2), but if initial efforts at e-learning produce no meaningful, observable results of value, it's easy to believe that there are no good options here—that Circle 1, the success cycle (Figure 1.1), is a fantasy or is suited only to the very rich. At that point, Circle 2 becomes the functional road map and an entrapment that is difficult to break free from.

The failure of so many e-learning applications to produce recognized results (beyond the rapture of their developers) has led to some very wrong conclusions about e-learning. Some popular but misleading conclusions are:

- e-Learning is boring by nature. The only interesting e-learning is that developed by a few creative people with generous funding and loose timelines.
- e-Learning can't be developed quickly or responsively.
- e-Learning can't be cost-justified.

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This Just In: Good e-Learning Is Possible and Practical

Even if you haven't yet seen it done well, you need to know that e-learning can provide extraordinary performance enhancements. It can be cost-effective and very popular among learners. e-Learning can address some of the innumerable performance problems organizations face, while it can work at an individual level to help us all achieve more of our potential and a better quality of life. It doesn't do this often enough, of course, but it's possible.

Some of the things we know about good e-learning are very impressive, as noted in Table 1.1. Of course, not all e-learning has all of these attributes, as not all e-learning is alike and not all of it is good. In fact, too much of it is deplorably bad—needlessly bad, as is discussed throughout this book. But look again at the list of attainable e-learning attributes and benefits. It's an honest and impressive list.

While there is an undeniable upfront investment, the positive return on this investment can make e-learning one of the least expensive means of accomplishing critical organizational performance. With the right process, tools, and models, it can even be developed with amazing speed. It is the intent of this book, in fact, to reveal some of the secrets of accomplishing all these goals.

Ineffective Training Is Costly

Ineffective training is bad for more than just the obvious reasons. You may be thinking, "Of course it's bad. Who doesn't know that?" Well, a lot of ineffective training is being offered. Either managers don't think ineffective training is a problem, or they don't recognize bad training when they have it. Somewhere along the line, if people thought bad training was truly bad, wouldn't someone terminate those projects or at least prevent ongoing dissemination and use of poor learning applications? Instead, organizations become trapped in a downward spiral, dying within Circle 2.

I must point out that the business cost of ineffective e-learning goes far beyond simply losing all the money spent on it. The total cost can be many, many times the direct cost of e-learning and may easily soar to multiples of the combined costs of the poor e-learning and on-the-job training fix being provided. The final bill is a sizeable sum comprised of these tangible costs, plus all the costs of poor performance and missed opportunities.

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TABLE 1.1 Good e-Learning

Attribute	Benefit
Shorter learning time, often much shorter	Less time away from productive work. Lower training costs.
Adapts to learner needs (i.e., learning mastery is fixed but individual learning times may vary)	Minimized time away from productive work (people return to work as quickly as individually able). No waiting for those needing extra time. Extra attention for those needing more help.
Actively involves learners; frequent activity	In-depth learning experiences for each learner, not just for selected learners or those volunteering.
Ensures learning	No sliding by. Each learner must achieve and demonstrate competency.
Generates positive learner attitudes (When done well, learners often rate e-learning activities as preferable to alternatives.)	More enthusiastic participation. More receptivity. Greater likelihood learning will be applied to on-the-job performance.
Provides consistent quality	e-Learning doesn't have bad hair days, headaches, or late nights out.
Allows instant, world-wide updates	Through networked services, corrections, improvements, and new information can be made available to all learners instantly.
Is available 24/7/365	Learning can start any day employees are hired or immediately upon assignment to new responsibilities. Learning can be worked in and around higher-priority activities. Learner-managed schedules—learners can work late into the night, in short sessions distributed throughout the day, or in long blocks of time; whatever works best for them.
Is patient and treats all learners objectively and fairly	Same options and same performance criteria for all learners. Blind to racial, cultural, and sexual differences. Offers no more or less learning support to any individual.
Is highly amenable to systematic improvement	Easily provides data necessary for the evaluation of each and every component.
Saves money through low-cost delivery (no or minimized travel; fewer or no instructors; automated administration; no classrooms, supplies, whiteboards, etc.)	Big savings have resulted from many applications of e-learning. Even taking full account of development costs, e-learning has a big advantage in cost savings.
Allows options for more in-depth study or review whenever needed	Support for learners with special interests or needs to go beyond the bounds of classes. Material used for instruction can be accessed for later use as reference material in a well-designed application.

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What You Don't Know Can Kill Your e-Learning

One cause of the frequent failures is that the real reasons for undertaking e-learning projects are not defined, are not relayed, get lost, or become misinterpreted. Instead of guiding projects through to the end, the success-related goals of enabling new behaviors are cashed in for the pragmatic goals of simply putting in place something that appears to be a training program. Because executives are not sufficiently attuned to the criteria against which their e-learning solutions should be evaluated, the focus of development teams turns to what will be assessed: mastering the technology, overcoming production hurdles, and just getting something that looks good up and running—within budget and on schedule, of course. The budget and schedule become much more the focus than the original goals.

Surely operational *success* is the primary reason most e-learning projects are undertaken. Success comes from more responsive customer service, increased throughput, reduced accidents and errors, better-engineered designs, and consistent sales. It comes from good decision making, careful listening, skillful performance. Remember: *Success for organizations and individuals alike requires doing the right things at the right times.*

How do things run amok so easily? Two reasons: counterfeit successes (a.k.a. to-do list projects) and undercover operations (a.k.a. on-the-job training [OJT]).

To-Do List Projects

Unfortunately, many e-learning projects are *to-do list* projects. The typical scenario: People aren't doing what they need to be doing. Someone in the organization is given the assignment to get training in place. A budget is set (based on what, who knows?), and the clock starts ticking down to the target rollout date. The objective is set: Get something done—and, by all means, get it done on time and within budget. Announce the availability of training, cross the assignment off the to-do list, and move on to something else. Goal accomplished.

For the project manager given the assignment, the real reason for implementing e-learning easily transforms from the instigating business need of getting people to do the right things at the right times to the pressing challenge of getting the training project done. Since expenditures for training development and delivery are calculated easily, but training effectiveness is not quantified easily and rarely is measured, the

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project manager knows how the success of the project will be assessed. It will be measured by timeliness and cost control and probably also by whether learners like it and report positive things about it. It will be measured by how good it looks, how quickly it performs, and whether it's easy enough to use. Complaints aren't good, so safeguards are taken to make sure the training isn't too challenging and doesn't generate a lot of extra work for administrative staff or others. *The absence of complaints is a win.*

Again, the original, purposeful goal of the project is no longer the operating goal. The project quickly becomes somebody's assignment to get done (a to-do list project), and it will be a success—a "success," however, that will most likely fail to contribute significantly to the organization.

Nobody Checks

Indeed, many of the e-learning developers I know commiserate that no assessment of behavior change is likely to be assessed seriously and no assessment of the return on investment (ROI) is likely to be performed. In one recent study, for example (Bonk 2002), nearly 60 percent of more than 200 survey respondents noted that their organizations did not conduct formal evaluations of their e-learning. It would be very surprising if even 10 percent of organizations using e-learning actually conducted well-structured and executed evaluations. Most organizations use any training funds they can earmark for training for the development of additional courseware, rather than for evaluation of completed programs.

The Real Project

What does this say about the *real* reason the project is being done? You have to wonder: If people think it's so unlikely that *any* training program is going to be effective, perhaps the learning outcomes aren't the real reasons for offering them. Unspoken, covert, and perhaps subliminal rationales may include thoughts that some sort of formal training, regardless of its effectiveness, will be better than nothing. That is, the *real* reason for implementing the training program might actually be to have the *appearance* of providing training. Otherwise, employees would complain and even have cause to do so. By offering a training program—*any* training program—the burden shifts to the employee.

"What? You don't know how? Didn't you learn anything in the class we sent you to? You must not have been paying attention. We go to all the expense of providing you training and you're still not getting it? Better get on board fast!"

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The likelihood of hearing such a comment may be low in actuality, because an employee would have to be caught not knowing what to do or voluntarily admit not knowing what to do even after taking the training provided. There are many reasons for employees to avoid such exposure, of course. So instead of speaking up, admitting lack of readiness, and enduring the consequences, they duck observation, quietly observe others, and, if experimentation and all else fails, surreptitiously interrupt coworkers to learn what's necessary—just enough, at least, to get by and avoid censure.

Unplanned On-the-Job Training: A Toxic Elixir for Poor Training

Formal training is delivered, observation suggests employees are able to perform, and no one is complaining. Success! Or maybe not. What's working may actually be unplanned on-the-job training, not the gratuitous, impotent, and probably boring e-learning that's been put in place primarily to demonstrate the company's recognition of techno trends.

Who's more anxious to learn than people trying to perform a skill, finding they can't do it, and fearing exposure? Nobody. The helpful guidance of coworkers gratefully received in this ominous situation is often effective, at least in terms of assisting in the specific task at hand. Unfortunately, providing poor e-learning and then invisibly dealing with its ineffectiveness through haphazard knowledge sharing is very expensive, slow, and potentially counterproductive—even dangerous. Let's see why this is so:

It's Expensive

It's expensive because you have the costs of two training systems—the e-learning system and the ad hoc, clandestine, on-the-job training system. While the costs of e-learning are rather easily identified and include design, development, distribution, and learner time, only the distribution costs and learner time are continuing, recurring costs (Table 1.2). Providing access to e-learning has become inexpensive and quite practical in many settings, whether it's done through CD-ROMs, local area networks, or the Internet.

Unplanned, unstructured on-the-job training doesn't cost anything for design and development, but it carries high and continuing costs that include coworker disruption and resulting loss of productivity. The learning worker probably receives an incomplete tutorial, as well, and will have to continue to interrupt others as additional incompetencies become

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TABLE 1.2 Cost Comparison

	Training Approach		
Parameter	**Good e-Learning**	**Unplanned On-the-Job Training (OJT)**	**Poor e-Learning Plus Ad Hoc OJT**
Design cost	Sizeable, one-time	None	Sizeable, one-time
Development cost	Sizeable, one-time	None	Sizeable, one-time
Distribution cost	Small, recurring	High, recurring	Higher, recurring
Effectiveness	High, dependable, consistent	Variable, depending on source, current demands	Variable, depending on source, current demands
Risks	Potentially high if enabled performance is not supported within the organization	Potentially high, such as when live, dangerous apparatus is used, business opportunities weigh in the balance, or deadlines need to be met	Potentially high, such as when live, dangerous apparatus is used, business opportunities weigh in the balance, or deadlines need to be met
Employee morale	Appreciates recognition of needs	Realizes must fend for self	Realizes must fend for self
Total			Negatives of both poor e-learning and OJT

apparent. Performance errors and employee frustration are likely. They contribute to the high costs of this strategy and can cause domino effects of unhappy customers, missed business opportunities, disrespect for management, and so on. (See Figure 1.3.)

It's Slow

Serendipitous on-the-job training can be timely, but it often is not timely and almost always is slow. It could be that the knowledgeable individual needs to finish a task before providing help on another. Perhaps a machine has to be shut down and restarted each time a procedure is demonstrated. The learner stands and waits, perhaps even being distracted by something to be done elsewhere and then being detained when the aid becomes available. The coworker then stands and waits. It's easy to imagine a multitude of realistic, probable causes of scheduling difficulties and inefficiency. Even when on-the-job training is planned, many companies look for alternatives

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FIGURE 1.3 Stacked costs of poor e-learning.

because of the inherent scheduling difficulties, costs, quality-control problems, lack of scalability, delays in updating, and other problems inherent in on-the-job training.

It's Risky

If all these problems weren't bad enough, there are dangers in some situations that could be devastating. It could be that the learner doesn't realize help is needed or doesn't want to admit it, which could allow problems to reach an unmistakable or indisguisable severity. You don't want doctors making decisions on hunches and then discovering their need for training while treating you, for example. You don't want a first-time Bobcat operator working next to your house.

Trial and error may be a good teacher, but there are costs. If errors are necessary before a user of an ineffective e-learning program (or any training program) gets needed help, errors will be made. Even further, if the consulted worker misunderstands the procedure, it's quite possible that misconceptions will be perpetuated, compounding error upon error. It's a risky path to take.

Good Training Is Possible

Training can work. e-Learning can work. Of course it can, and it does work beautifully for growing numbers of people every day. Well-designed e-learning can be extraordinarily effective, be efficient with time, and pay for itself over and over again. It can put your organization in a more competitive position by:

- Improving customer service
- Getting new processes up and running faster
- Reducing employee turnover
- Improving morale

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- Increasing production
- Decreasing errors
- Improving product quality
- Improving efficiency

Study after study has demonstrated the potential effectiveness of e-learning. An extensive list of studies appears in Horton (2000). Of course, e-learning isn't more effective than other forms of instruction just because it's delivered via computer. The quality of e-learning is specific to each application, just as the quality of books, television, and film varies with the particular content, program, or movie. e-Learning can be very good, very bad, or anything in between. The *way* in which e-learning capabilities are used makes all the difference.

Example

Here is a quick example showing that the value of good e-learning instruction can be instantly apparent while its use is fun. This example may be far different from what you need to teach, but consider it for a second. Suppose you were teaching the fundamentals of finding the epicenter of an earthquake with seismographs. This topic could be taught through some pages of text and graphics, as shown in Figure 1.4. Add a question as in Figure 1.5 and it's interactive, right? Wrong.

Demo on CD

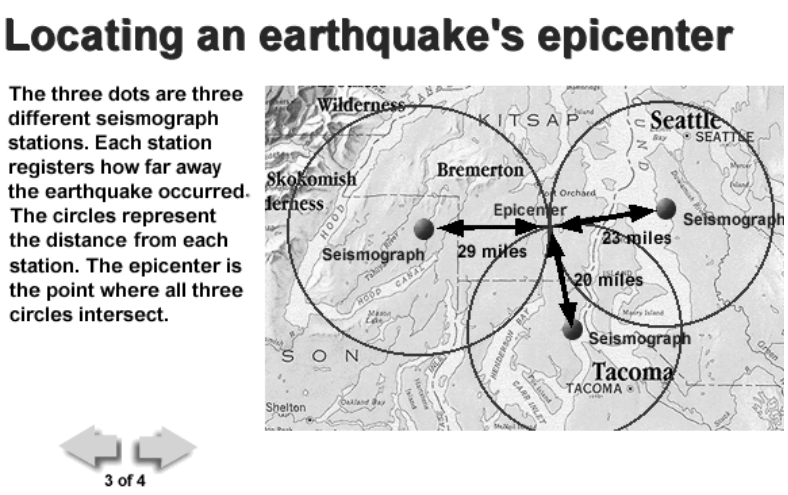

FIGURE 1.4 Page turner.

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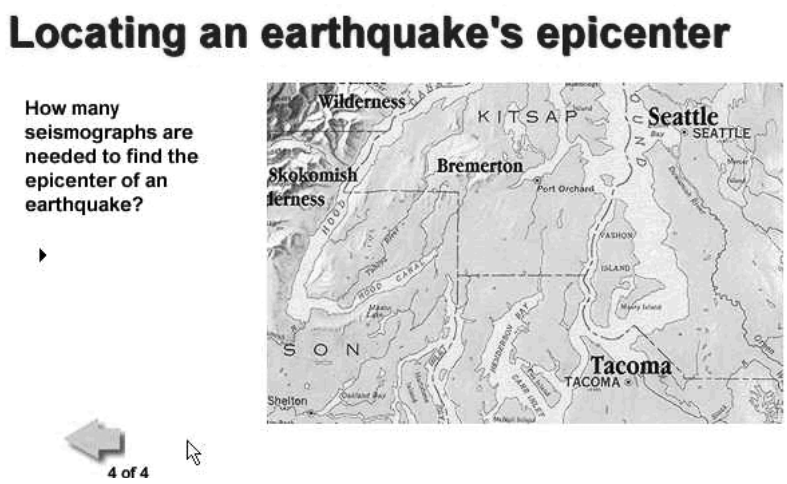

FIGURE 1.5 Page turner with question.

Truly interactive learning builds an experience that facilitates both deeper understanding and easier recall. In the design shown in Figures 1.6 to 1.8, learners place seismographic stations one at a time, take a reading, and see from the radius distance how necessary it is to have more than one reading. Wouldn't this be a lot better?

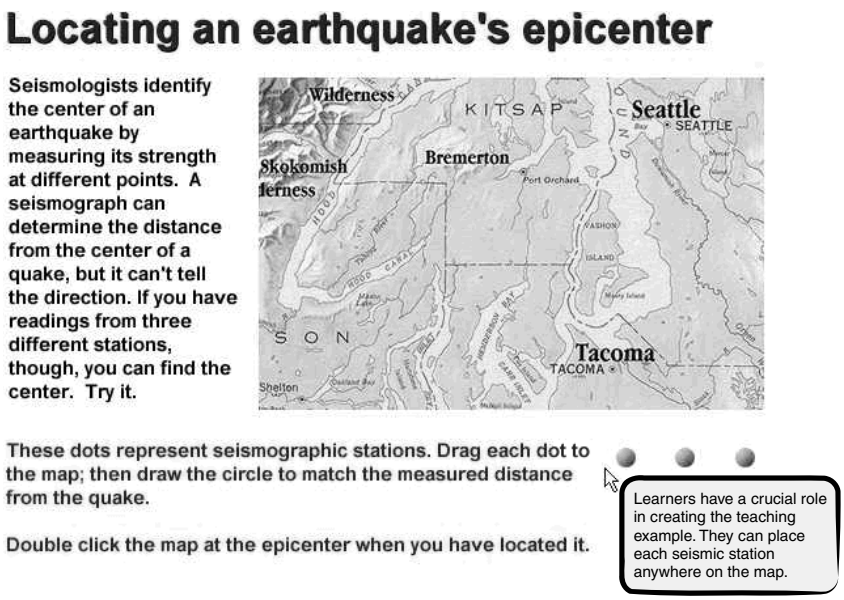

FIGURE 1.6 Pique the learner's interest.

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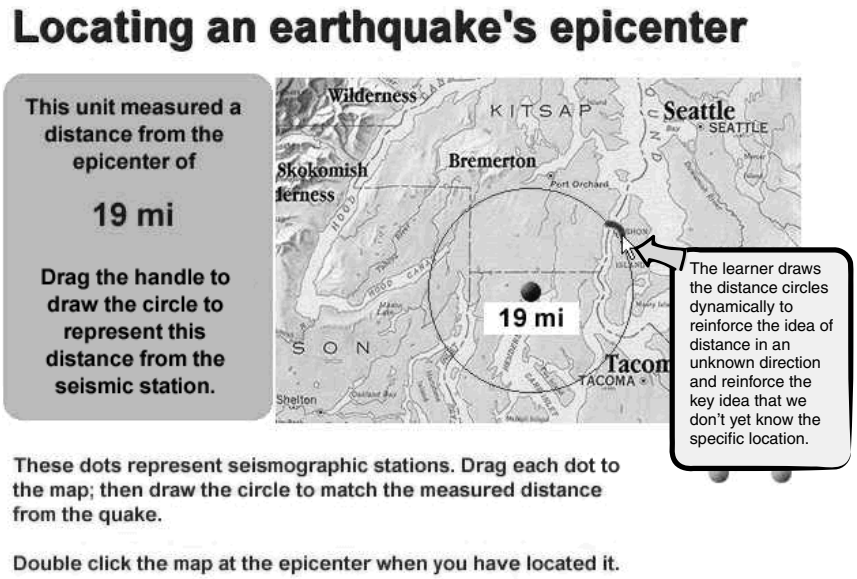

FIGURE 1.7 Let the learner play.

It shouldn't be surprising that the most common learner action after completing this sequence is to try it again. It fosters no end of curiosity: What if I put the stations really close together? What if I put them in a straight line? What if I place one exactly on the distance circle of another station? The interface allows all these questions to be explored, each answer developing a richer understanding in the learner's mind.

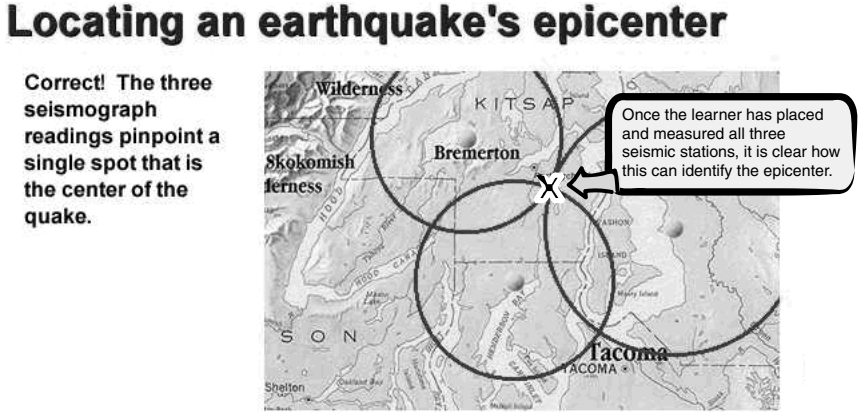

FIGURE 1.8 Confirming feedback is almost unnecessary.

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Where Does e-Learning Fit?

Almost everywhere. Whatever business you're in, whatever content and outcome behaviors you're dealing with, e-learning can probably make a valuable contribution.

Cognitive Skills

Procedures, facts, and conceptual knowledge are all natural types of content for e-learning. These are vital components of learning almost anything. From food preparation to accounting, from aircraft navigation to marketing techniques, from quality manufacturing to drug abuse prevention, e-learning can help.

Soft Skills

Sometimes it's thought that "soft skills" such as management, leadership, interpersonal relationships, client management, and dealing with upset customers are beyond the reach of e-learning, yet experienced e-learning program designers know that these are, in fact, areas in which e-learning has been singularly effective. Pioneering work done by the Internal Revenue Service to teach agents to deal with upset taxpayers and work done at Carnegie Mellon University (Andersen, Cavalier, and Covey 1996) to teach ethics has demonstrated how uniquely powerful computer-supported learning environments can be for learning soft skills. We'll examine some sample applications later.

Psychomotor Skills

There are, of course, skills that need practice. e-Learning is probably not the best way to learn to play the drums or hit a baseball, yet these activities have critical knowledge components, such as knowing how to read a musical score or knowing when to bunt. Knowledge components can be taught through e-learning very effectively, of course, as can various mental imaging techniques that are known to improve performance (Korn and Sheikh 1994). Don't overlook the opportunity to use e-learning as an appropriate and effective part of a training program for behaviors that are primarily based on motor skills.

Interface devices and sensors are now being developed for application in various simulators and virtual reality systems and to assist disabled persons and recovering medical patients. Striving for perfection, some golfers and Olympic athletes already analyze their performance using such technologies (Sandweiss and Wolf 1985). These devices are rapidly

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becoming available for use with e-learning applications designed to teach a great variety of psychomotor skills. It's clear that the applicability of e-learning will expand ever wider as our experience grows and technologies develop.

You Have Choices

You don't have to live with e-learning programs that don't work. You don't have to pretend your e-learning application is good when you know it isn't. You have options. Because a good e-learning program is a cost-effective way to get people to do the right things at the right times, it can help achieve vital business goals. Cloaking poor training with an on-the-job training coverup (whether it's done consciously or not) neither fixes the problem nor achieves the many positive competitive outcomes possible. And it costs plenty. This shouldn't be a difficult choice.

Smart e-Learning

There are some critical and often overlooked elements to being smart about e-learning (Table 1.3). When the goal is not just to get some training in place but to change behavior, you're off to a good start. Then, you have to accept that good e-learning applications, while far less expensive than poor e-learning applications, are an investment. Good training isn't cheap in absolute dollars, and the major expense for e-learning is up front. This is why the rich can get richer and the poor do get poorer. The rich don't have to merely dabble in e-learning, strangling its success potential through inadequate funding and support (although they frequently *do* dabble). But neither the rich nor the poor benefit from just doing something, from just going through the motions. If you merely go through the motions, rather than focusing intently on changing behaviors, there will be no winners, and e-learning will look like an impotent technology. Even if you have little to spend, you can spend it effectively on key behaviors that can make all the difference. And especially if you have little to spend, you can ill afford to waste what you have.

It is estimated that in 2004, over $23 billion will be spent just on corporate e-learning programs, not including academic e-learning programs (IDC 2001). The likelihood is great that $22.5 billion of that will be wasted. If money is available, it will be spent, but it will achieve little of importance if we stay on the same path most are on today with their e-learning applications. You don't have to take that path, rich or poor.

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TABLE 1.3 A Smart Approach to e-Learning

Critical Elements	Critical Because
Goal is to change behavior	It's easy to assume that e-learning is only about teaching things, but success isn't the result when people know the right things to do, yet continue to do the wrong things. Both the e-learning system and the environment in which it is applied must be designed to enable, facilitate, and reward good performance in order to achieve maximum success.
Adequate financial investment	While the return on an investment in a good e-learning program can be incredible, it takes an up-front investment in design and development. Inadequate investment can severely reduce the ROI, even making it strongly negative. (Don't go with the lowest-price option unless you're sure that what you'll get will meet your success criteria.)
Partnership between business managers and e-learning developers	If business managers abdicate their critical role in the process of achieving needed human performance, it's much less likely that e-learning will succeed. Training designers need a continuing partnership with management to know exactly what behaviors are needed, to understand the challenges trainees will face on the job, and to influence posttraining support and incentives.
Partnership with subject-matter experts	There are many ways to inadequately fund e-learning projects and ensure their failure. One is to provide inadequate access to subject-matter experts—the people who really know what behaviors are needed and what must be learned to enable people to perform them. Almost continuous availability is often required to ensure success in the investment. Note that subject-matter experts include not only the people who may teach courses and write manuals, but also the people who supervise operations and know exactly what their teams need to do.
Partnership with learners	Learners should not be the blind victims of whatever instructional approaches experts think would be helpful. Learners can be helpful throughout the entire development process, from definition of what needs to be taught, through the design process, and into the final evaluation.

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Partnerships

It takes careful planning, organization, and support to build and deliver good training solutions, regardless of the medium used. Design of successful e-learning systems can be done in-house or contracted to outside developers, but neither approach is often successful enough to justify the costs without the involvement of management, subject-matter experts, and learners *throughout the process.* Many projects fail to reach much of their potential because these support groups are not available enough or are not asked to participate. If you're planning e-learning development for your organization, be sure arrangements are made for adequate participation by each group.

Management Participation

Organizational leaders can provide the financing for training development and assume their involvement is done, but this is often a severely handicapping mistake. Management needs to provide not only the financial support but also continuing help to clarify the vision, define success criteria, and provide a performance-centric environment.

Achieving an organization's vision nearly always depends on human performance. If everyone understands the goal, including those developing the training and support systems expected to help deliver critical performance, the probability of reaching the goal is much higher.

The criteria for success translate portions of the overall vision into specific performance requirements. Clearly relating these criteria to the larger vision gives designers a vital context within which to work and to motivate learning. Everyone needs to be clear that success won't be achieved if the e-learning program doesn't result in specific behavioral changes, and that this is what the effort is all about.

Finally, financial support is only one kind of support that management needs to provide. While financing is critical, it's insufficient to ensure success. Behavioral patterns are established in response to instructions, rewards, effort, available resources, perceived risk, observed behavior in others, team values, and so on. Being *able* to perform as management would prefer does not guarantee that it will *happen.* Management must understand that change is difficult, that there is inertia behind existing behavior patterns, and that change will not be accomplished unless management provides a strongly supportive context.

Management is responsible for one of the pillars needed for a successful e-learning program, but it needs the skills of an on-target design and

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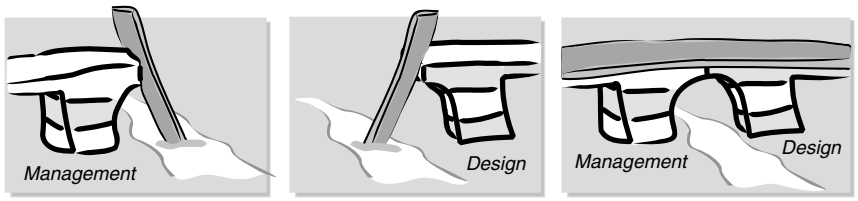

FIGURE 1.9 Success requires support at both ends.

development team to turn the vision, criteria, and support into a successful investment in e-learning (Figure 1.9).

The design team's challenge is to provide a strong matching pillar. After defining appropriate behaviors to enable, designers begin by creating ways to ensure high levels of learning motivation. They then make sure that the enabling instructional content is clear and accurate, as a base on which to evolve meaningful and memorable learning experiences (Figure 1.10).

Both pillars are needed to achieve success in e-learning, although designers often struggle for success without much support from management. What they achieve is often commendable under the circumstances. Management, in turn, needs designers who will strongly resist building superficial solutions, provide needed insights, and lead development through a participative process that effectively involves all needed people and resources.

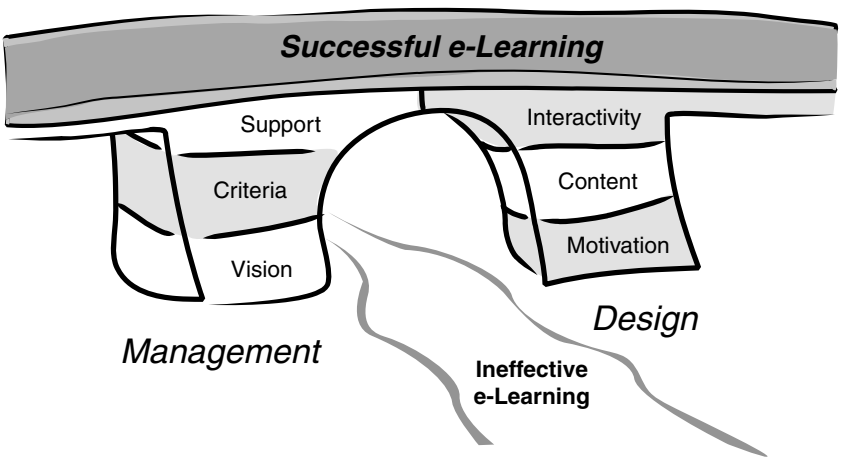

FIGURE 1.10 Bridge over troubled e-learning.

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Subject-Matter Expert Participation

Obviously, subject-matter expertise is important, but what is surprising to many is that this expertise isn't just needed at the beginning of an e-learning development project; it is needed throughout. As application prototypes are built and reviewed, for example, needs and opportunities arise for additional content and revisions. If experts aren't available, or aren't available without considerable advance notice and scheduling, projects suffer—sometimes fatally.

Interactivity can be viewed as a dialog between the learner and the e-learning application. The e-learning application represents the combined subject-matter, instructional, and media expertise of the design and development team. The application becomes, if you will, an expert mentor with whom the learner communicates.

Interactive events evolve through the process of design and development (see Chapter 4 for details on the process). As they evolve, the design team looks for ways to make the learning experience as beneficial as possible. This frequently involves searching for ways learners can be allowed to make instructive mistakes. As this occurs, many possible learner behaviors are identified, quite often including a number that were not originally anticipated. These behaviors can be accepted and reinforced as instructional events only if subject-matter experts are available to specify appropriate consequences and feedback.

Learner Paticipation

Many e-learning application development efforts seek the participation of learners only near the end of the project. Learners are invited to use the application so that functional problems can be observed, ambiguities and unintelligible elements can be identified, and learning effectiveness can be measured. Unfortunately, this is too late in the process to use learner participation for insight on structuring learning events and shaping the experience as a whole.

All too often, organizations are ready to speak for their employees—to make assumptions about what they will find interesting, what they do and do not understand, where their learning problems will be, and so on. When learners are put in a situation where they can respond to such issues meaningfully, many assumptions are frequently disproved. Just asking potential and recent learners some basic questions often reveals important information for design.

Beyond answering initial questions, learners can make vital contribu-

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tions when asked to review prototypes and interact with evolving e-learning applications, even if quite rough, long before they are completed.

Developing optimal e-learning applications involves sensitivity to many perspectives and values. It involves the interplay of knowledge, technology, art, and design. It's not at all like sending out for a pizza—listing a few parameters and getting a hot product delivered to your door. The effectiveness of the involvement and partnership of all key players will determine the ultimate success of any project. Unfortunately, this means being available and much more.

How This Book Can Help

If e-learning systems typically failed for only one reason, there wouldn't be so much confusion, and this could be a very short book. We could attack the root of the problem and be done with it. Unfortunately, there are many causes of e-learning failures and much confusion about what constitutes good e-learning methods.

Part 1 Overview

Chapter 2 tracks down and describes some of the all too common and frequently unrecognized causes of e-learning failures at an overview level.

Management Issues

If you're an executive considering a new investment in e-learning or wondering why your current e-learning program isn't working out better, the next chapter is especially for you—as are, in fact, the remaining chapters in Part 1. Chapter 2 talks about how many principles that could work don't work as they're often applied. Chapter 3 lays out design criteria you can use to specify criteria for the e-learning solutions you would be willing to fund, and Chapter 4 talks more about the design process to help you feel comfortable with your participation in the process.

Design Issues

If you're a designer, Part 1 should help you communicate about the essential concepts of successful e-learning with your clients. Chapter 2 may help you work with organizations to create an environment in which e-learning can achieve the performance success needed, while Chapter 3

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may give you some ammunition for fighting off failed traditions in instructional design so you can focus on what's really important. Chapter 4 discusses an iterative process so essential to developing creative products of complexity. If you're stuck in a linear, waterfall process, this chapter may give you the confidence to try something that many of us now feel is indispensable.

Part 2 Overview

Part 2 makes a second pass through design issues, although at a much more detailed level. It shows a collection of examples—or at least screen captures of examples—that are from real applications and demonstrate how vibrant and effective good e-learning can be.

You might be thinking that Part 2 isn't for you because you are not an instructional designer. Although it is indeed written to help project leaders and designers avoid the tempting mistakes so many of us have made in e-learning, it is written just as much for business leaders. Executives must become informed buyers—able to make smart investment decisions, on guard against alluring but inconsequential applications of technology, and ready to assess whether e-learning solutions rise to their expected and needed levels of quality. In other words, you need to know something about instructional design. I've tried to make the coverage of critical principles quick and easy to read and understand.

My Mission

The purpose of this book is to show that pursuit of a productive, beneficial path doesn't happen without attentiveness, leadership, and expertise. It takes awareness of the alternatives and the predictable results of choosing each alternative. It requires questioning and making some smart decisions. Experience helps. Duh.

In many ways, I'm surprised this book is needed. I meet so many intelligent and dedicated people in the field of designing and developing e-learning applications. We commiserate over the same topics (year after year) and talk about the exciting possibilities of interactivity. I rarely meet with anyone who disagrees with me about the importance of engaging the learner, building a meaningful context, providing valuable opportunities for performance failure coupled with excellent, intrinsic, corrective feedback, and so on. Then when I see their work, I wonder what we were agreeing about. It's clear that one can talk a good game and still not really get it.

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Get It Here

There are challenges to creating good training, granted—but it's not that hard, either. It's not the sheer difficulty of creating good e-learning programs that's keeping us locked in this unproductive trench, it's:

- Lack of awareness that poor decisions can and often do look reasonable
- Lack of knowledge that intuition in the design of instructional interactions is often a poor guide
- Lack of effective teamwork between business leaders and e-learning designers
- Lack of realization that instructional design is a complex undertaking and that to create good designs requires specialized knowledge and skill—not just enthusiasm and creativity

As Tom Werner writes in his direct and insightful publication, *Getting up to Speed on E-Learning* (Sunnyvale, CA: Brandon Hall, 2001):

> Today e-learning could come from anywhere. Management consultants, technology vendors, enterprise system implementers, and outside content providers may drive e-learning without the input or collaboration of the traditional training department. If you want to participate in e-learning, to guide the changes and to have a satisfying and useful role in e-learning, you must be literate about the issues, options, and tools. (Werner 2001, p. 2)

But there's a problem here, too. It's not easy to be functionally "literate about the issues, options, and tools" involved in successful e-learning. It's not as easy as getting an advanced degree, for example, although getting an advanced degree is a smart thing to do. And, of course, it is far from easy to earn an advanced degree. But is a degree enough?

Knowing versus Succeeding

Unfortunately, many who have advanced degrees, and sometimes years and years of experience, aren't getting it either. They can follow principles they've been taught, discuss research findings in depth, and be compliant with all applicable guidelines and standards without producing

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anything close to optimal learning applications. In fact, some of the worst e-learning applications I've seen have been built by some of the most educated and knowledgeable individuals in the field. (If you're one of my friends or colleagues, make no mistake about it—we're talking about somebody else.)

On the other hand, I've seen people with no formal education or training in instructional design produce brilliantly effective applications. These people are the rare exceptions, but they really get it. They may not know why they've made the design decisions they have, nor what's really important about them, but they instinctively reject what may, in fact, be very traditional and widely accepted axioms of good design in favor of doing smart, interesting, and effective things.

Of course, this book isn't intended to substitute for a graduate degree in human learning or instructional design. Knowing the things taught in formal courses on human learning, tests and measures, curriculum development, perception, educational psychology, graphic design, communications, and so on can be very, very helpful. I strongly endorse such programs, while recognizing that many of them need considerable improvement and don't go nearly far enough into what makes an effective adult learning experience. What you can't be assured of is that these formal programs will help you *get it*—the *essence of effective instructional interactivity.* And this makes all the difference.

My hope in this book is to help all my readers get it; at the very least, to recognize approaches and designs that have high prospects of success—of getting people to do the right things at the right times. To recognize designs that don't work. To identify some possible remedies. And to enjoy the benefits of great e-learning design.

Summary

Through some frank plain talk, I've tried to clear up some misconceptions about e-learning. When done well, e-learning saves money, provides effective and consistent training, is available at all hours, and offers many other benefits. I listed the attributes and benefits as clearly as I could in Table 1.1, finding even as I wrote them down that, indeed, there is a very long list of benefits to be realized.

Many of the potential e-learning benefits are not realized often, however. There are many reasons for this. One is that management is often

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What Exactly Is e-Learning?

Simple question.

There should be a simple answer. It helps a lot if definitions can be simple and clear-cut. But with e-learning, a very new term relative to the decades of research on the use of computers in support of learning, there are differing opinions about which types of applications fit within the concept and which do not.

It is popular to use an all-inclusive definition, such as this one:

e-learning A structured, purposeful use of electronic systems or computers in support of the learning process.

The American Society for Training and Development (ASTD), a worldwide association for workplace learning and performance professionals, offers the following definition of e-learning in its Web-published glossary. The all-inclusive nature of the term is made explicit by the listing of example technologies and applications included:

e-learning Covers a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM. (American Society for Training and Development 2001)

Some argue that only *Internet-delivered* applications in support of learning should be included—that the vital role the Internet plays in certain applications makes it important to distinguish these applications. Others note that there are many excellent Internet-delivered learning applications that do not use any capabilities that are in any way different from those of instruction delivered via CD-ROM. Many applications simply use the Internet as a means of distribution. They do not: invoke communication among learners or between learners and instructors; access changing databases; involve searching Web sites. This doesn't make them good or bad necessarily; they simply are not using unique Internet capabilities and so could be delivered by other means.

Indeed, it would be good if there were a term to differentiate those learning applications that take advantage of the Internet's unique capabilities. Unfortunately, the differentiation hasn't taken root even with the alternate term, *WBT* (Web-based training). Perhaps

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those learning applications in which the Internet plays a vital and essential role should be called *I-learning.*

For better or worse, all computer-delivered instructional applications are frequently grouped under the general heading of *e-learning,* while those specifically delivered over the Internet are called *WBT.* Neither term specifies the most critical characteristics of applications—the instructional paradigms employed—nor even what specific technologies are tapped.

Interactive multimedia comprise the primary technologies upon which e-learning applications are built. Students see text, graphics, and animation on their screens. They sometimes also see video and hear sounds. Problems are posed and students respond through the keyboard, the mouse, or sometimes the microphone. Input gestures are recognized, and the software responds through one of the presentation media. Instructional paradigms vary widely, ranging from simple multiple-choice questions with corrective feedback to high-fidelity simulations to group role playing.

not in a position to see the correlation between the support given for e-learning application development, the quality of e-learning applications put in place, and the benefits achieved. Management often makes unfortunate decisions regarding e-learning program support (and we're not talking about just money here) as a result.

By the same token, e-learning application developers are often not included in the creation of business plans and are unable to help create success strategies. They therefore strive to complete projects on time and within budget, knowing they will be judged more on this than on actual effectiveness—which is often hard to observe and frequently goes unmeasured anyway. Designers rarely have the time or support they need to learn how to create truly powerful e-learning experiences that are also cost-effective. As a result, e-learning applications fail to become part of an effectively designed, complete solution that includes ongoing support and incentives for behavioral change and improvement.

The primary justification for e-learning is that it can, with great efficiency, help organizations achieve success by enabling people to do the right thing at the right time. The mission of this book is to bring both management and e-learning application designers to a common point of understanding about good e-learning—its attributes and development processes that can work to help any organization succeed.